

SUPPLEMENTARY REPORT

CHAMBERSBURG BASIN

HAMILTON TOWNSHIP

PUMPING STATIONS

A. Pumping Station # 1 - Rocky Spring Station

1. Initial Services

26 + 40 ± in Flohr Development = 66

Lines = 11,203 x 300 = 77 acres

8" force main - 8,078 L.F.

High point in force mains = 749.5 elevation

Gravity sewer line entering wet well = 560.00

Receiving sewer = 12 inch @ 0.0028 '/' with a capacity of
852.72 gpm = 1,227,888 gpd.

2. Initial Capacity Requirements

66 x 3.5 = 231 persons

231 x 100	=	23,100 gpd)	Average Daily
	=	16.04 gpm)	

23,100 x 180%	=	41,400 gpd)	Peak Daily
	=	28.75 gpm)	

23,100 x 270%	=	62,370 gpd)	Peak Hourly flow rate
	=	43.31 gpm)	

Because of the high static head requirements 194.5' ± a six-inch force main produces too high of a friction loss. Assuming the use of a 5 x 5 x 17 Allis-Chalmers pump with a 125 H.P. Motor the 6-inch force main would limit flow from this station to approximately 360 gpm. If the second pump were called to assist the first pump, the head capacity system curve indicates that no additional flow rate could be realized.

Therefore, an 8-inch force main is selected. By utilizing this size main with the same 5 x 5 x 17 pump, we can increase the flow rate to approximately 680 gpm or 979,200 gpd. This flow, by assuming 250 g/d/c peak rate would provide capacity for $979,200/270 = 3626.66$ persons or a total of 1,036 houses. This would therefore mean this system will provide for an additional 970 houses.

By proportion, $\frac{66 \text{ houses}}{77 \text{ acres}} \times \frac{1036}{\text{acres}}$, we have

$\frac{1036 \times 77}{66} = 1208$ Acres future service area that could be served by this station in both Letterkenny & Hamilton Townships.

3. Detailed Pump Designation

Allis-Chalmers, Model No. 300 - 5 x 5 x 17 NSW-V, with 15-1/2 inch impeller, Curve No. A-7067, 3 phase, 60 cycle, 230/460 volt, 125 H.P., 1750 rpm, O.D.P. Motor, with the following special pump construction features:

- a. Packing instead of mechanical seals
- b. Special shafting
- c. Special bearings
- d. Duron Casting & impeller

For generator use "ONAN", 125 KW Automatic, LP gas operated unit.

Model No. 125 NE-4XR8-131 with automatic transfer panel LTD 200 - 24 X

B. Pumping Station # 2 - Brechbill Station

Initial Services = 64

$64 \times 3.5 = 224$ persons

224×100	=	22,400 g/d)	Average Daily
	=	15.55 g/m)	
$22,400 \times 180\%$	=	40,320 g/d)	Peak Daily
	=	28.0 g/m)	

Bottom of Wet well = 597.42

High Point in FM = 750.50

153.08 = static head

29.04 = Friction head

182.12 = T.D.H. @ 260 gpm

Assuming the use of a 6-inch force main, we are able to produce 260

gpm @ 184' T.D.H. with an ALLIS-CHALMERS PUMP (4 x 4 x 14)

1. Pump - Use ALLIS-CHALMERS Model No. 300 - 4 x 4 x 14 NSW-V with 13" impeller, Curve No. A-7095, 40 H.P., 3 phase, 60 cycle, 230/460 volt, 1750 rpm, O.D.P. Motor with Duron Metal casting and impeller. Use NORGREN type 12-005, 0.25 MICRON Filter assembly to pressurize & lubricate mechanical seals.
2. Generator - Use ONAN 40 KW, Generator, Model No. 40.0 EM - 15R131, with Model LTD 100-24X, Transfer panel, LP gas operated.

260 gpm x 1440 = 374,400 g/p

374,400/270 = 1386.7 persons

1386.7/3.5 = 396.2 houses - 124 = 272.2 future houses

Assuming 115 acres for the exist^{ing} 124 houses, future service area =

$\frac{115}{124}$ acres or $\frac{\text{acres}}{396.2}$, therefore future area = $\frac{396.2 \times 115}{124} = 367.4$ acres